Introduction

- Traffic Information Deriving Using GPS Probe Vehicle Data Integrated with GIS
- The concept of travel time estimation on GPS records data has been introduced and proved to be an effective technique to understand traffic condition
- Travel time from GPS records measured along selected segments in London for evaluating the traffic condition will be cross examined with TfL LCAP records.

Objectives

- Extracts an information of vehicle GPS records and using to find travel time (UTT).
- Travel time value from GPS records validation to find out can the travel time from GPS-probe taxi represents the traffic condition

Backgrounds

- GPS records from Addison Lee in 14 days period (1st - 14th DEC 10)
- LCAP records for cross-validation process
- Technical Aspects
  - DBMS: data (both GPS and LCAP records) storage, management, and calculation
  - R programme: cross validation process
  - ArcGIS: spatial aspect, data visualisation, and presentation

Methodology

- GPS records
  - Extract travel time (UTT) from the point records
  - Matching travel time on each road segments (TOID)
  - Calculate 14-days average UTT on each segments
- LCAP records
  - Calculate 14-days average UTT on each LCAP segments
  - Matching travel time on each LCAP segments to road segment (TOID)
  - Prepare data for validates the value of 14-days avg UTT from LCAP records against 14-days avg UTT from GPS records
  - Calculates R –squared or coefficient of determination between UTT from LCAP and GPS records
  - Finding out whether GPS Probe taxi records can represent traffic condition
  - Presentation of information in map

Result

- UTT from GPS records in road network in attribute data and spatial data
- Coefficient of determination between UTT from LCAP and GPS records

Discussion and Conclusion

- GPS records from taxi, however still have low distribution of data
  - some road segment did not have very few records from GPS-probe taxi
- LCAP records cannot acquired with good quality during for UTT estimation during night time.
- Less correlation of UTT trend and pattern between LCAP and GPS records

Recommend

- Time period for study should be extend to cover monthly period, in order to covers all time window biased, and possibly more GPS records
- More GPS records from many source/taxi company because few GPS record in each road could not covers all nature of traffic data in urban environment.